

**REMARKS**

Claims 1-8 are pending in this application. The Office Action rejects claims 1-8 under 35 U.S.C. §112, and rejects claims 1-8 under 35 U.S.C. §103(a). By this Amendment, claims 1 and 4 are amended. Support for the amendment to claims 1 and 4 can be found in the specification as filed, for example, at page 3, lines 25-28 and page 4, lines 1 and 2 of the description. No new matter is added.

**I. Rejection under 35 U.S.C. §112**

Claims 1-8 are rejected under 35 U.S.C. §112, first paragraph, for containing subject matter not disclosed in the specification. Applicants respectfully traverse this rejection.

The Office Action states that "the limitation that the process includes crushing the activated carbon in situ in a water treatment plant (claims 1 and 4, line 3) does not appear to be supported by the disclosure as originally filed, and hence constitutes new matter." Applicant respectfully submits that the description (page 3, lines 25-28 and page 4, lines 1 and 2 in addition to Fig. 1, item no. 22) expressly states that a "milling machine is preferably installed by attaching it to a passage of the water to be treated or to a tank reservoiring water to be treated, so that activated carbon particles are subjected to wet milling by the milling machine."

Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

**II. Rejection Under 35 U.S.C. §103(a)**

The Office Action rejects claims 1-8 under 35 U.S.C. §103(a) as having been obvious over JP 10-309567 (hereafter, "Kurita") in view of Hatano et al. (U.S. Patent No. 6,602,816) in further view of Allen et al. (U.S. Patent No. 5,268,106). Applicant respectfully traverses this rejection.

Claim 1, as amended, is directed to a method of adding activated carbon in water purification treatment comprising: milling the activated carbon in situ in a water treatment

plant; and adding activated carbon to purify water to be treated, characterized by an aqueous suspension containing activated carbon fine particles having an average particle size of 0.1  $\mu\text{m}$  to 10  $\mu\text{m}$  obtainable by wet milling of the particles of the activated carbon is added to the water to be treated. Claim 4 is directed to a water treatment method, substantially comprising the steps of claim 1 in addition to a step of subjecting an obtained activated carbon-containing water to be treated to a membrane separation treatment. Such methods are nowhere taught or suggest by the cited references.

The Office Action cites Kurita as disclosing purifying water by adding activated carbon having the recited particle size to the water, and subjecting the treated water to membrane separation. The Office Action asserts that Kurita thus discloses the claimed invention, except for the claimed *in situ* crushing of activated carbon by wet milling. To remedy the deficiencies of Kurita, the Office Action cited Hatano as disclosing that it was known to adjust the particle size of an adsorbent material such as clay by wet milling, and cites Allen as disclosing that it was known to produce a sorbent material at the site at which it is intended to be used. Regardless of these teachings, Applicant submits that the references are improperly combined, and that the cited references would not have rendered obvious the claimed invention.

Even if the references are taken together, the combined references do not teach or suggest that it was known, or would have been obvious, to mill the activated carbon *in situ* in a water treatment plant, and to add the thus-milled activated carbon to purify water to be treated, as claimed. While Kurita and Hatano may teach the use of activated carbon in water treatment plants, and may teach activated carbon of the recited particle size, the references do not teach or suggest that the activated carbon is milled *in situ* at the water treatment plant. Moreover, Allen likewise does not teach or suggest any use of activated carbon for purifying water to be treated, and does not teach or suggest milling the activated carbon *in situ* in a

water treatment plant, and then adding the milled activated carbon to purify water to be treated, as claimed.

From the references themselves, there does not appear to be any motivation for one of ordinary skill in the art to have combined the disclosures of Kurita and Hatano with Allen, to practice the claimed invention. In the absence of any such motivation, the rejection is improper, and the references would not have rendered obvious the claimed invention.

Allen is further improperly combined with Kurita and Hatano, at least because Allen is directed to non-analogous art. Allen discloses an application relating to an oil spill recovery method, in which hydrophobic-oleophilic polymers are meltblown and dispersed in the form of a cover or layer over land, or directly on oil in order to contain and absorb it. Meltblown polymer fibers, as described in Allen, are adapted to solve the specific problems associated with environmental clean-ups involving toxic liquids capable of being absorbed or contained over varied terrain or on water. To contrast, the claimed invention is directed to an improved method of purifying water (such as river water) in a treatment plant by adding activated carbon which has been milled on-site in order to increase the efficacy of the activated carbon's adsorption. Allen thus discloses a different solution to a different problem utilizing a different process. Applicant therefore respectfully submits that Allen is non-analogous art.

Moreover, the Office Action states that it would have been obvious to an ordinarily skilled artisan to produce activated carbon in situ "in order to facilitate handling, and to eliminate any transportation costs associate with bringing the activated carbon to its intended location" as in Allen. However, the storage, handling and transportation costs associated with utilizing polymer fibers for environmental clean-ups in Allen are due to the low bulk density and large volume of the fiber. Applicant respectfully submits that such problems are not associated with utilizing activated carbon to purify water, and that the storage and

handling advantages of the instant invention are merely incidental. As stated in the specification (for example, page 2, lines 5-25, page 4, lines 3-17), the several primary advantages of milling the activated carbon in situ, include: (1) the avoidance of secondary aggregation of the activated carbon, thereby maximizing adsorption; (2) the avoidance of "dry stage" carbon, thereby eliminating dusting problems; and (3) the ability to purchase cheaper carbon. Applicant submits that it would not have been obvious to look from Kurita and Hatano to Allen to solve these problems, which are specific to water purification, because Allen does not address or solve these problems. In fact, there appears to be no suggestion in Kurita or Hatano to combine the teachings of Allen for any reason. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

**III. Conclusion**

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-8 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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